

A NEW COMBINATION IN *THEVETIA* (APOCYNACEAE)

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ABSTRACT

Recent studies of Mexican Apocynaceae have led to a reevaluation of the taxonomic status of *Thevetia peruviana* (Pers.) K. Schum. var. *pinifolia* Standl. & Steyerem. The taxon is here viewed as specifically distinct and elevated accordingly with the new combination, *Thevetia pinifolia* (Standl. & Steyerem.) J.K. Williams, comb. nov.

RESUMEN

Los estudios recientes sobre las Apocynaceae mexicanas han permitido una reevaluación del estatus taxonómico de *Thevetia peruviana* (Pers.) K. Schum. var. *pinifolia* Standl. & Steyerem. Este taxon se ve aquí como una especie distinta y por consiguiente es elevado de rango con la nueva combinación, *Thevetia pinifolia* (Standl. & Steyerem.) J.K. Williams, comb. nov.

Key Words. *Thevetia*, Apocynaceae, Flora, Mexico

In their original description of *Thevetia peruviana* var. *pinifolia*, Standley & Steyermark remarked that they were inclined to recognize the new taxon as a distinct species (Leavenworth 1946). They refrained from this course, however, because they interpreted two herbarium specimens as having leaves that were intermediate in form between the putative taxa. A reexamination of these plants, (*MacDaniels 244* and *Palmer 27; F*), indicates that they do not share with the typical variety a set of newly discovered characters. Instead, these plants are merely narrow leaved forms (4 mm wide) of *T. peruviana* (6–20 mm wide). Furthermore, these “intermediates” are growing without the range of the typical variety, and it is suspected that they are not native but rather cultivated individuals. This hypothesis is founded on two principles; (1) given the cultivated popularity of *Thevetia peruviana*, it is difficult to ascertain its natural habitat (Woodson 1938), and (2) the “intermediates” were collected from the vicinity of Acapulco, an area of artificial development.

The only character that Standley & Steyermark used to distinguish var. *pinifolia* from var. *peruviana* was leaf dimension: filiform vs. linear-lanceolate, respectively. Field observations, along with a significant accumulation of herbarium specimens, has revealed alternative characters that separate var.

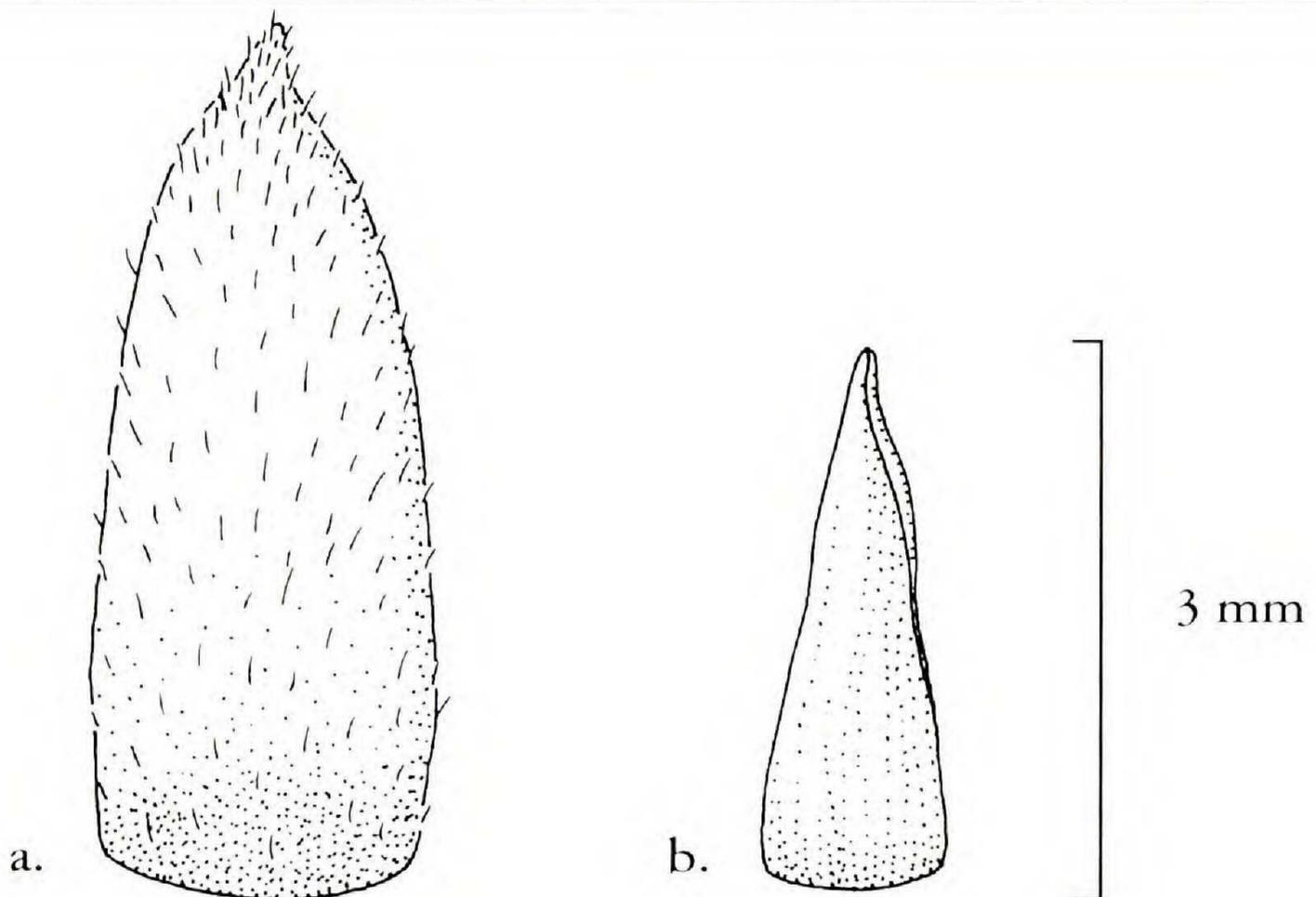


FIG. 1. Bracts of *Thevetia pinifolia* (a) and *T. peruviana* (b).

pinifolia from var. *peruviana*. The new traits are pubescence (vs. wholly glabrous), spreading corolla lobes (vs. erect), ovate bracts (vs. lanceolate) (Fig. 1), and an isolated geographical range (Fig. 2) (vs. widespread throughout Mexico and Central and South America).

The var. *peruviana* does share several features with var. *pinifolia*. There is essentially no difference in the shape and dimensions of their calyx, corolla, and fruit. Also, both taxa lack prominent secondary lateral veins on the surface of their leaves, an important diagnostic feature emphasized by Woodson (1938). The only other species of *Thevetia* lacking lateral veins, *T. gaumeri* Hemsl., is wholly glabrous, has elliptic leaves, and ovate bracts.

Although var. *pinifolia* does not have secondary lateral veins on its leaves, it possesses other characters similar to a species that does: *T. ovata* (Cav.) A. DC. Both var. *pinifolia* and *T. ovata* have pubescence along their stems, leaves, and inflorescence. They also have similar geographical ranges, spreading corolla lobes, ovate bracts, and both possess similar calyx and corolla dimensions. Another species of *Thevetia* with secondary lateral veins and pubescence, *T. thevetioides* (H.B.K.) K. Schum., has flowers twice the size of var. *pinifolia*, *T. peruviana*, and *T. ovata*.

Given that var. *pinifolia* has a combination of characters used elsewhere in the genus to discern species, it seems evident that the taxon is a distinctive element showing little if any character intergradation with *Thevetia peruviana*. Because of this var. *pinifolia* is elevated to the rank of species.

The two species can be readily distinguished by the following key:

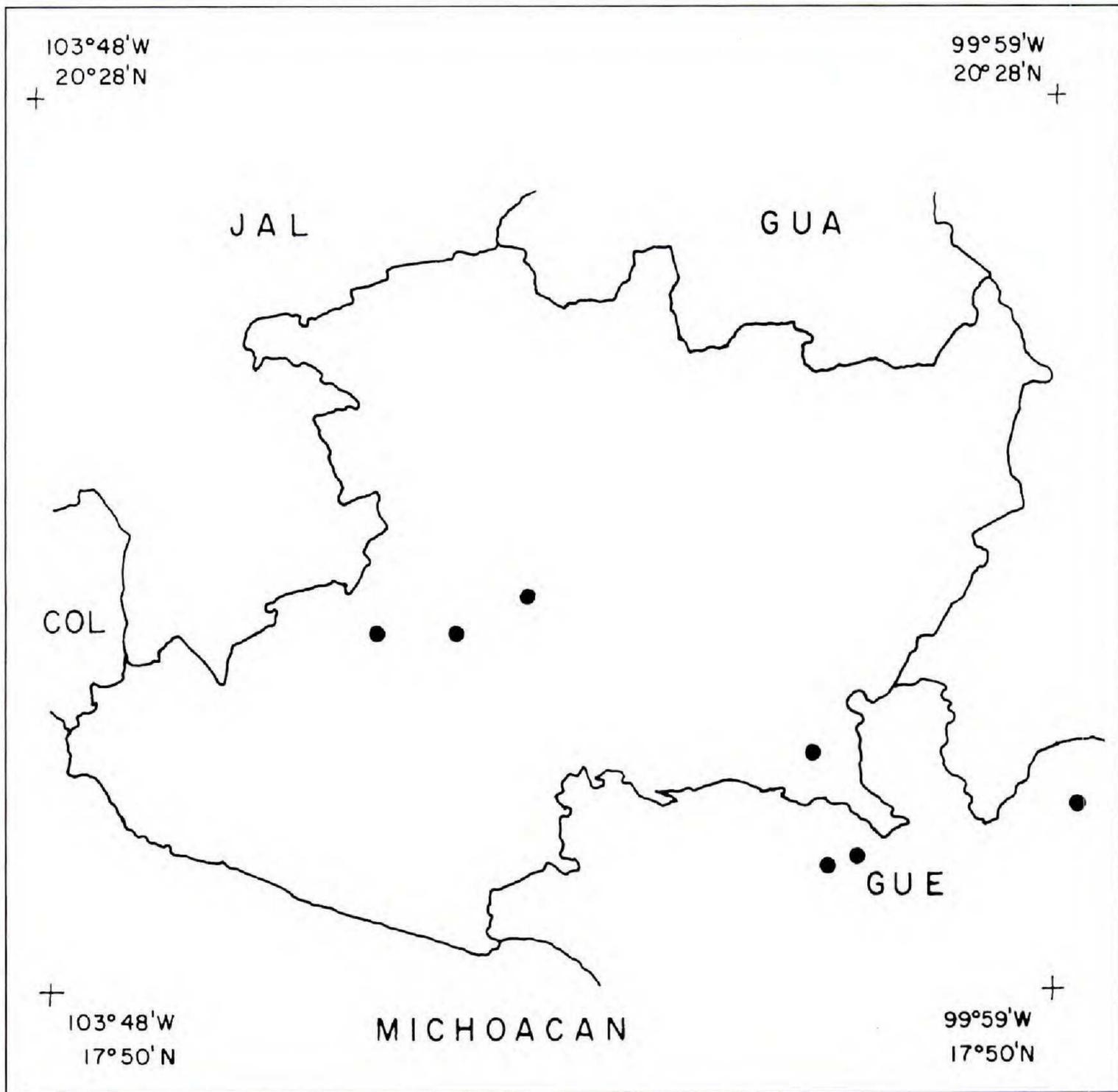


FIG. 2. Documented distribution of *Thevetia pinifolia*.

- 1. Leaves filiform, 1–2 mm wide, (9–)10–17 cm long; plants with peduncles, branches of new shoots, petioles, underside of leaf, bracts, and calyx pubescent; corolla lobes spreading, tube glabrous inside; bracts ovate, 4–5 mm long, 2 mm wide (Fig. 1); fruits with shallow median ridge; restricted to Michoacan and Guerrero (Fig. 2) **T. pinifolia**
- 1. Leaves lanceolate, (4–)6–15(–20) mm wide, 8–12(–15) cm long; plants wholly glabrous; corolla lobes erect, tube with indument inside; bracts lanceolate, 2–3.5 mm long, 1 mm wide (Fig. 1); fruits with large median ridge; widespread throughout Mexico and extending into Central and South America, commonly cultivated in both hemispheres (Fig. 3) **T. peruviana**

Thevetia pinifolia (Standl. & Steyerl.) J.K. Williams, comb. nov. BASIONYM: *Thevetia peruviana* (Pers.) K. Schum. var. *pinifolia* Standl. & Steyerl., Amer. Midl. Naturalist 36:185. 1946. TYPE: MEXICO. MICHOCAN: trail from Apatzingan to Tancitaro, 2,500 ft, 7 Aug 1940, W.C. Leavenworth 505 (HOLOTYPE: F!; ISOTYPES: GH, NY).

Shrub to 4.5 m; new branches sparsely pubescent, 2–5 mm wide. Leaves at the upper 5–20 cm of new branch growth, sessile, filiform, entire, dark

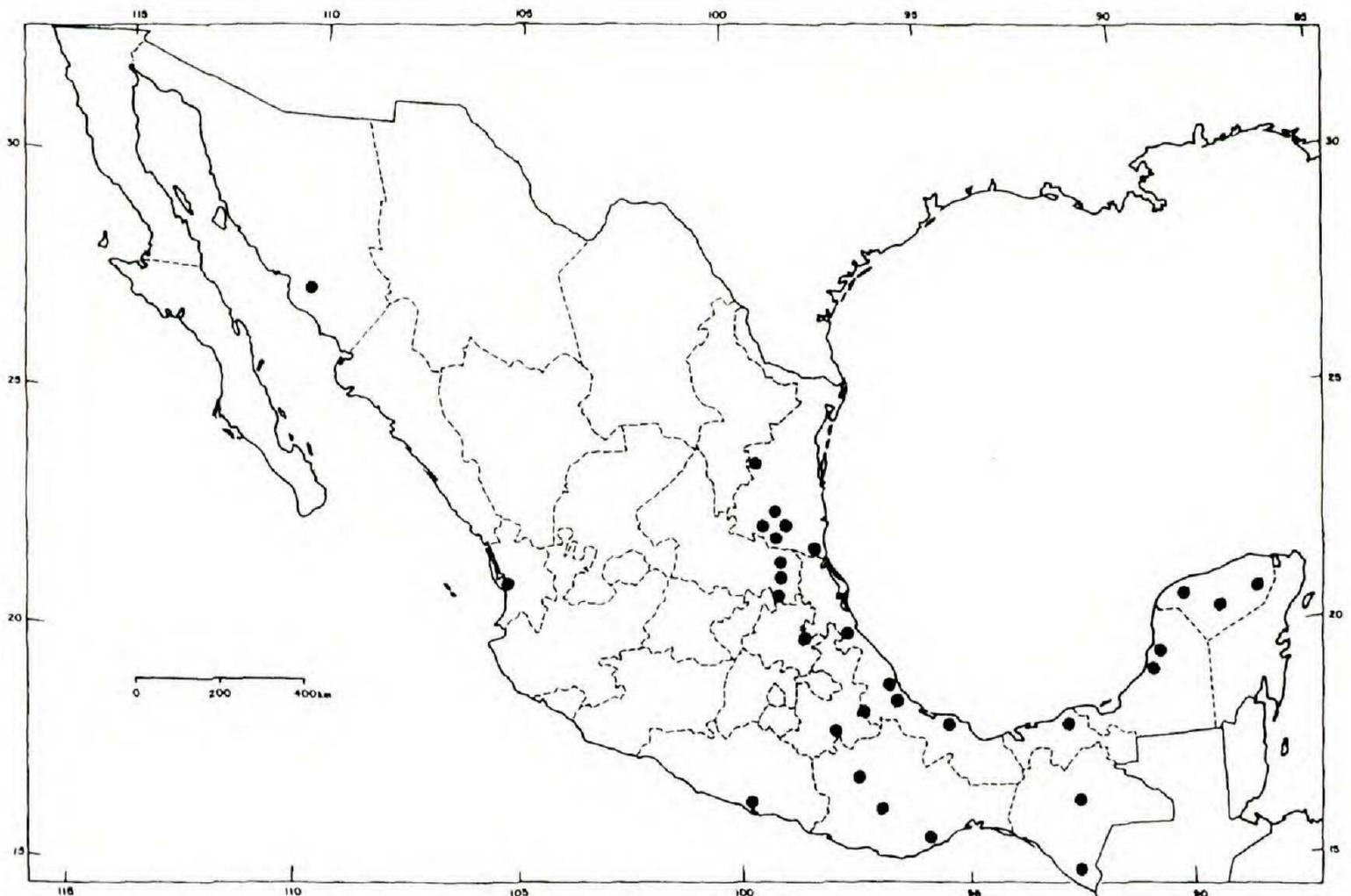


FIG. 3. Documented distribution of *Thevetia peruviana* in Mexico, documentation by Gensel (1969).

green, (9–)10–17 cm long, 1–2 mm wide; blade 0.5 mm wide on either side of midrib, lateral veins absent, pubescent along the bottom 4 mm. Inflorescence terminal, of 2–5(–7) flowers; peduncles 1.5–3.0 cm long, pubescent; bracts ovate, 4–5 mm long, 2 mm wide, pubescent; pedicels 1.0–2.5 cm long, pubescent. Calyx of five sepals, connate at the extreme base; sepals ovate, 7–10 mm long, pubescent, 6–10 colleters per sepal. Corolla infundibuliform, yellow, 40–50 mm long; tube 10–15 mm long, pubescent within along the upper portion of tube where grading into the cup, glabrous along the bottom four-fifths of tube; cup 9–15 mm long, glabrous within; lobes 20–30 mm long, spreading, glabrous. Anthers five, free, along the top edge of the tube protruding into the cup, past the infrastaminal hairs. Fruits a four-seeded drupe, 3–4 cm tall, 3–5 cm wide, greenish when ripening, blackish when mature.

Representative specimens. **MEXICO.** Guerrero: Mpio. Zirandaro, 29 km SW of Zirandaro, road to Guayameo, 13 Jun 1982, *Salas 1336* (MO); Mexicaltepec, 8 km al NW of Inguala, 14 Oct 1981, *Nunéz 3339* (MEXU); Mpio. de Coyuca de Catalan, in Placeres del Oro, 20 Mar 1980, *Nunéz 2038* (MEXU); en Paso de Arena, 18 km al SW de Coyuca de Catalan, 17 May 1978, *Nunéz 660* (MEXU); Placeres del Oro, 2 Aug 1937, *Hinton et al. 10532* (TEX; MO; US); Placeres del Oro, 28 Jul 1936, *Hinton et al. 9178* (TEX; MO; US); Coyuca, 3 Apr 1935, *Hinton et al. 7579* (MO; US). Michoacán: Road to Tancitaro, 2 km N of Apatzingan, growing in ravine along creek, 23 Aug 1995, *J.K. Williams 95-56* (TEX); carretera entre Gallina y Gabriel Zamora, 5 km antes de Gallina, Aug 1987, *Luna 18263*

(TEX); en Las Colonias, Huetamo, *Martinez* 3639 (MEXU); En Huetamo, en El Barrio Alto, 26 Mar 1982, *Nunéz* 3890 (MEXU); 2 km al SE de Pinzandaro, 9 Aug 1978, *Rzedowski* 35724 (MEXU); 13 km W of Apatzingan, 4 May 1966, *Rzedowski* 22307 (TEX; US); Apatzingan, arid slope with scattered trees, 13 Aug 1941, *Leavenworth* 1477 (F); bank of Río Apatzingan, 5 Aug 1940, *Leavenworth* 463 (F); Apatzingan, 15 Aug 1938, *Hinton et al.* 12018 (F; TEX; US); Huetamo, 1 Mar 1934, *Hinton et al.* 5716 (US).

Distribution.—This plant is apparently endemic to the tropical scrub forests of Michoacan and Guerrero, growing chiefly along arid plains and canyons between 360–1,000 m. It is interesting to note that this species shares a similar habitat and range with another apocynaceous endemic in Apatzingan (the type locality for both taxa), *Echites woodsoniana* Monachino (Williams, pers. obs.), a taxon that was recently collected by the author (*Williams* 95-80; TEX) not more than 30 m from a stand of *T. pinifolia*. Another rare apocynaceous taxon, *Fernaldia asperoglottis* Woodson, has also been collected from Apatzingan (*Hinton et al.* 15329; TEX), and surrounding Guerrero (the type locality).

After submitting the manuscript for review, it was brought to my attention (Nesom, pers. comm.) that Gensel (1969), in an unpublished masters thesis, had independently recognized *T. pinifolia*. All but one of the characters we used to differentiate *T. pinifolia* from *T. peruviana* were different. I did not notice the presence of indument in the corolla tube of *T. peruviana*, nor did I recognize a difference in the median ridge of the fruit. Gensel did not recognize the difference in external pubescence nor the shape of the bracts. From field work, however, we independently noticed the spreading corolla lobes of *T. pinifolia* and the erect lobes of *T. peruviana*. I have included the characters discussed by Gensel (1969) in the key. I should point out the Gensel annotated the two “intermediates” (see above) as *T. pinifolia*. The flowers of these specimens have been destroyed through the years and it is not possible to examine the inside of the corolla tube for indument. However, the specimens have lanceolate bracts and lack external pubescence, for these reasons I treat them as *T. peruviana*.

In several villages near Apatzingan the plants appear cultivated, but upon questioning the natives I was informed that the plants were wild and that they had removed the surrounding vegetation for farming, leaving *Thevetia* for aesthetic purposes.

Label data on *Nunéz* 2038 notes that children eat the pulp of *Thevetia* fruits. Although Morton (1982) reports that all parts of the plant except the pulp contain toxic glycosides (ex. thevetin and peruvoside) consumption of the pulp by children is not recommended as the seeds are highly toxic (Woodson 1937). A child's accidental swallowing of only one to two seeds will typically result in their death. The average toxic dosage for an adult is eight to ten seeds.

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